THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A content addressable memory (CAM) having a plurality of ternary memory cells in a fabricated semiconductor material, each ternary half cell comprising:
an equal number of transistors of a p-type and an n-type, the p-type transistors being formed in a n-well region and the n-type transistors being formed in a p-well region of said semiconductor material, the wells having at most one p+ to n+ region spacing, the transistors being interconnected to form said half ternary CAM cell and wherein the interconnections between the half cell are restricted to a first group of conductive layers and connections between said cell and signal lines external to said cell are formed in a second group of conductive layers.

2. A CAM as defined in claim 1, said external signal lines including a search line, matchline, bitline and word line.

3. A CAM as defined in claim 2, said search line being formed in a third metal layer.

4. A CAM as defined in claim 3, said matchline and wordline being formed in a fourth metal layer.

5. A CAM as defined in claim 1, said bit line being formed in a fifth metal layer.

6. A CAM as defined in claim 1, said silicon layer including one polysilicon layer.

7. A content addressable memory (CAM), comprising:

(a) a plurality of half ternary CAM cells each having an equal number of transistors of a p-type and an n-type, the p-type transistors being formed in a first well region and the n-type transistors being formed in a second well region of a semiconductor material, the wells having at most one p+ to n+ region spacing, the transistors being interconnected to form said half ternary CAM cell and wherein the interconnections are restricted to a silicon layer and a first metal layer;

(b) power lines formed in a second metal layer and coupled to said cells;

(c) a plurality of search lines formed in a third metal layer;

(d) a plurality of wordlines and matchlines formed in a fourth metal layer; and

(e) a plurality of bitlines formed in a fifth metal layer.